

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 September 2001 (20.09.2001)

PCT

(10) International Publication Number
WO 01/69357 A1

(51) International Patent Classification⁷: G06F 1/16

(21) International Application Number: PCT/KR00/00847

(22) International Filing Date: 2 August 2000 (02.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2000/7504 U 16 March 2000 (16.03.2000) KR
2000/35774 27 June 2000 (27.06.2000) KR

(71) Applicant: IL SUNG INTERNATIONAL CO., LTD.
[KR/KR]; 60-1, Yangbeol-3ri, Ohpo-myun, Kwangju-gun,
Kyungki-do 464-896 (KR).

(72) Inventor: PARK, Min-Su; 501, 916-27th Daechi-dong,
Kangnam-ku, Seoul 135-280 (KR).

(74) Agents: LEE, Chul et al.; 2F, Changsang Building,
1543-12, Seocho-3dong, Seocho-ku, Seoul 137-872 (KR).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

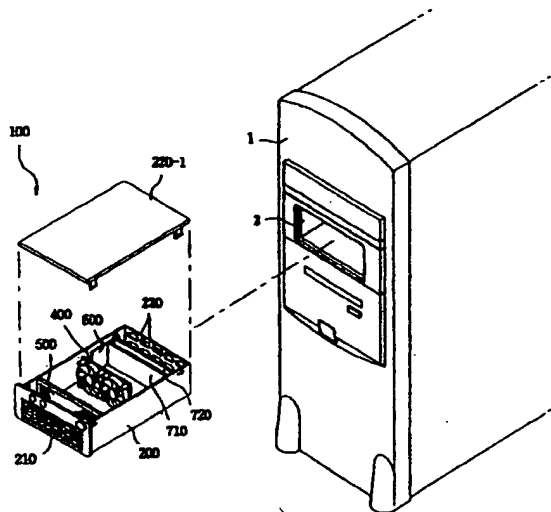
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANIONIZER FOR PERSONAL COMPUTERS



(57) Abstract: An anionizer for personal computers is disclosed. This anionizer is comprised of an anionizer unit, which has a detachable dust collector and an anionizing assembly and is installed in the drive mount opening of a personal computer in the same manner as the installation of conventional drive units of the computer in the mount opening. The anionizer thus effectively filters and cleans contaminated air of a limited working space around the computer and anionizes the filtered air, and so the anionizer prevents a user of the computer from being ill-affected by contaminated air and prevents the interior devices of the computer from being contaminated or malfunctioning due to the contaminated air. In the anionizer unit, the anionizing assembly is electrically connected to a high voltage generator, while the dust collector is set at a position above the anionizing assembly and collects contaminants, such as dust, from air through an electric discharging effect.

WO 01/69357 A1

ANIONIZER FOR PERSONAL COMPUTERS

BACKGROUND OF THE INVENTION

5 Field of the Invention

The present invention relates to an anionizer for personal computers and, more particularly, to an anionizer designed to be installed in the drive mount opening of a personal computer in the same manner as the
10 installation of a conventional drive unit of the computer in the mount opening, thus filtering and cleaning contaminated atmospheric air of a limited working space around the computer and anionizing the filtered air so as to deodorize the air, the anionizer of this invention
15 thus finally preventing a user of the computer from being ill-affected by the contaminated air and preventing the interior devices of the computer from being contaminated or malfunctioning due to the contaminated air.

20 Description of the Prior Art

In the prior art, an anionizer is installed in an air cleaner, which is mounted on a support wall within a house or a passenger room of a car, and removes dust from contaminated air through a dust collection process so as
25 to give clean air to people.

Conventional home or office anionizers are designed to appropriately clean contaminated air within a limited space, and so they may be preferably used for accomplishing an air cleaning effect within a limited
5 working space having a problem of bad ventilation. However, such conventional anionizers are not widely used within the limited working space because of a variety of reasons.

A conventional personal computer is typically
10 provided with one or more small-sized cooling fans for cooling a printed circuit board (PCB) of the computer during an operation of the computer. Such cooling fans somewhat effectively accomplish the desired PCB cooling effect. However, the conventional cooling fan forcibly
15 sucks atmospheric air into the casing of a computer along with impurities or contaminants, such as dust, thus undesirably contaminating the interior devices of the computer.

Since the cooling fan repeatedly and forcibly sucks
20 contaminated atmospheric air into the casing of a computer, contaminants, such as dust, are deposited on the interior devices of the computer and cause an undesired characteristic variation of a variety of devices mounted on the PCB. This finally causes an
25 operational error or a malfunction of the computer.

Particularly, a variety of contaminants, such as dust, smoke and germs, laden in the air within a limited working space around a computer may give ill-effect to the user's bronchus. In a brief description, air around
5 a computer within a limited working space may be laden with a variety of contaminants and may suffer a lack of oxygen, and gives ill-effect to the user's health.

It is thus necessary to provide an effective means for cleaning contaminated air around a computer within a
10 limited working space of a house, an office or another place using computers, thus preventing the user's health and the working place around the computer from being ill-affected by contaminated air.

15 SUMMARY OF THE INVENTION

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide
20 an anionizer for personal computers, which is comprised of an air filter and an anionizing assembly and is installed in the drive mount opening of a personal computer in the same manner as the installation of a conventional drive unit of the computer in the mount
25 opening, thus filtering and cleaning contaminated

atmospheric air of a limited working space around the computer and anionizing the filtered air, and which finally prevents a user of the computer from being ill-affected by the contaminated air and prevents the interior devices of the computer from being contaminated or malfunctioning due to the contaminated air.

In order to accomplish the above objects, the present invention provides an anionizer for personal computers, comprising an anionizer unit installed in the drive mount opening of a personal computer in the same manner as the installation of a conventional drive unit of the computer in the mount opening.

BRIEF DESCRIPTION OF THE DRAWINGS

15

The above and other objects, features and other advantageous of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view of a personal computer provided with an anionizer in accordance with the present invention;

Fig. 2 is an exploded perspective view, showing the construction of an anionizer for personal computers in

accordance with the preferred embodiment of the present invention;

Fig. 3 is a plan view of the anionizer of Fig. 2, with a dust collector being separated from the anionizer;

5 Fig. 4 is a side sectional view of the anionizer of Fig. 2, with the dust collector being set in the anionizer;

Fig. 5 is a block diagram, showing the construction of an anionizer for personal computers in accordance with
10 the second embodiment of the present invention;

Fig. 6 is an exploded perspective view, showing an installation of the anionizer of Fig. 5 relative to a drive mount opening of a personal computer;

Fig. 7 is a sectional view of the anionizer of Fig. 5 set in the drive mount opening of the personal
15 computer, with an air filter being set within the anionizer; and

Fig. 8 is a view, schematically showing the operational effect of the anionizer of Fig. 5, when
20 contaminated atmospheric air is filtered by the air filter and is anionized by an anionizing assembly of the anionizer and is discharged from the anionizer to the atmosphere.

Reference now should be made to the drawings, Figs. 1 to 8, in which the same reference numerals are used throughout the different drawings to designate the same or similar components.

Fig. 1 is a perspective view of a personal computer provided with an anionizer in accordance with the present invention. As shown in the drawing, the anionizer for personal computers according to the present invention comprises an anionizer unit 100, which is installed in the drive mount opening 2 of a personal computer 1 in the same manner as an installation of a conventional drive unit of the computer 1 in the mount opening 2.

Fig. 2 is an exploded perspective view, showing the construction of an anionizer 100 for personal computers in accordance with the preferred embodiment of the present invention. As shown in the drawing, the anionizer unit 100 comprises a unit bracket 10 covered with a top cover 11 at its top. A connector 20 is set on the unit bracket 10 and is connected to a power supply jack (not shown) of the computer 1. A high voltage generator 30 is electrically connected to the connector 20 at a position around the connector 20 and generates a high voltage.

An anionizing assembly 40 is electrically connected

to the high voltage generator 30 and generates anions in accordance with an operation of the high voltage generator 30. A dust collector 50 is detachably set at a position above the anionizing assembly 40 and collects
5 contaminants, such as dust, from air through an electric discharging operation.

Fig. 3 is a plan view of the anionizer of Fig. 2, with the dust collector 50 being separated from the anionizer. As shown in the drawing, the anionizing
10 assembly 40 of the anionizer unit 100 comprises a base plate 41, which is made of a plastic material and is mounted to the bottom wall of the unit bracket 10. A locking unit 42 is mounted on the central portion of the base plate 41 and is used for alternately holding the
15 dust collector 50. Two support units 43 are installed at opposite sides of the locking unit 42 while being spaced apart from each other and are used for elastically supporting the dust collector 50 thereon. The anionizing assembly 40 also has two contact plates 44, which are
20 installed at opposite sides of the locking unit 42 while being spaced apart from each other and being electrically connected to the high voltage generator 30. The above contact plates 44 elastically support the dust collector 50 thereon. A spark generator 45 is installed on the
25 base plate 41 and causes an electric discharge between

opposite electrodes due to a high voltage generated by the high voltage generator 30.

Fig. 4 is a side sectional view of the anionizer of Fig. 2, with the dust collector 50 being completely set in the anionizer. As shown in the drawing, each of the support units 43 is integrated with the base plate 41 and has an axial slide groove 43-1 on its top surface. A support piece 46, bent at a right angle at opposite ends thereof, is axially movably set on the slide groove 43-1 of each support unit 43, while a tension coil spring "S" normally biases the support piece 46 in a forward direction.

The anionizing unit 100 further comprises a front panel 60, which is used for guiding an insertion of the dust collector 50 from the front of the unit bracket 10 to the position above the anionizing assembly 40 and turning on or off electric power for the anionizer unit 100. When the anionizer unit 100 is fully installed within the mount opening 2, the front wall 60 is leveled with those of the other drive units installed within the mount opening 2.

The dust collector 50 comprises a dust collecting plate 51, which is provided with a plurality of air circulation holes 51-1. Due to the air circulation holes 51-1, air passes through the dust collecting plate 51 in

accordance with an electric discharging operation of the electrodes. A front door 52 is provided along the front edge of the dust collecting plate 51 and has a shape suitable for being selectively seated in the front panel 5 60. A locking projection 52-1 is formed at the center of the rear edge of the dust collecting plate 51. The dust collector 50 also has a rack gear 52-2, which is formed on the lower surface of the dust collecting plate 51 in a direction from the front door 52 to the rear edge.

10 At least two contacts 51-2 are provided on the dust collecting plate 51. When the dust collector 50 is fully seated on the unit bracket 10, the two contacts 51-2 are brought into contact with the two contact plates 44, thus being finally grounded to the contact plates 44 and 15 acting as cathodes electrically connected to the high voltage generator 30.

A filter "F", laden with charcoal, is attached to each surface of the dust collecting plate 51. This filter "F" is used for absorbing and filtering 20 contaminants from air passing through the dust collecting plate 51.

In addition, a relatively thin unwoven fabric, a film or a sticker may be preferably attached to the surface of each filter "F". In such a case, it is 25 preferable to allow the thin unwoven fabric, the film or

the sticker to be laden with perfume capable of deodorizing the filtered contaminants. The perfume may be preferably applied to the thin unwoven fabric, the film or the sticker through a spraying process or a
5 coating process.

The front panel 60 consists of a ventilation grille 61 used for discharging air from the anionizer unit 100 to the outside of the computer 1. A power switch "A" is provided at the central portion of the front panel 60 for
10 controlling electric power for the anionizer unit 100. An insert slit 62 is formed at a position above the grille 61 and is used for allowing an insertion of the dust collector 50 into the anionizer unit 100. Two guide pieces 63 extend rearward from opposite ends of the
15 insert slit 62 and guide a linear movement of the dust collector 50 when the dust collector 50 is inserted from the front panel 60 into the anionizer unit 100. The front panel 60 also has a sliding gear "G" installed within the insert slit 62. This sliding gear "G" engages
20 with the rack gear 52-2 of the dust collector 50, thus allowing a smooth sliding movement of the dust collector 50 in the case of an installation or removal of the dust collector 50.

Figs. 5 to 8 are views, showing the construction and
25 operation of an anionizer for personal computers in

accordance with the second embodiment of the present invention. In the anionizer according to the second embodiment, the anionizer unit 100 consists of a unit bracket 200, which is installed in the drive mount opening 2 of a personal computer 1 in the same manner as an installation of conventional drive units of the computer 1 in the mount opening 2. This unit bracket 200 is covered with a top cover 220-1 at its top, with both an air inlet 210 formed at the front wall of the unit bracket 200 and an air outlet 220 formed at the rear wall of the unit bracket 200. An anionizing assembly 700 is mounted on a PCB 600 set on the unit bracket 200 and generates anions from its anionizing plate 730. The anionizer unit 100 also has an anionizing power switch 300, which is provided on the front wall of the unit bracket 200 and is used for turning on or off the anionizing assembly 700 so as to selectively generate desired anions. The above anionizing power switch 300 cooperates with the PCB 600 to operate both a drive fan 400 and the anionizing assembly 700. In such a case, electric power for the PCB 600 is supplied from the computer through the power supply jack.

The drive fan 400 is set on the unit bracket 200 and is rotated at a predetermined rpm when the anionizer unit 100 is turned on. This drive fan 400 thus generates

sucking force for forcibly sucking air into the anionizer unit 100.

An air filter 500 is installed around the drive fan 400 within the anionizer unit 100 so as to filter off 5 impurities from the sucked air. This filter 500 is preferably made of a fabric, paper or plastic material. In order to improve the filtering effect of the filter 500, it is preferable to use one or more filters while overlapping the filters or to use a filter having micro 10 pores. It is also preferable to use a washable filter as the filter 500 or use an inexpensive filter that does not increase the maintenance cost of the filter 500.

The anionizing assembly 700 is mounted on the PCB 600 within the anionizer unit 100 and is used for 15 generating desired anions from its anionizing plate 730, which consists of one cathode plate 710 and one anode plate 720 individually generating a high voltage.

In the anionizer according to the second embodiment, the unit bracket 200 is also provided with both a power 20 display 230 for displaying an application of electric power for the anionizer and an anionizing assembly display 240 for displaying an operational state of the anionizing assembly 700.

The operational effect of the anionizer according to 25 the primary embodiment of the present invention will be

described when it is set within a personal computer 1.

When the anionizer unit 100 of this invention is installed within the drive mount opening 2 of the computer 1, electric power for the unit 100 is supplied
5 from the computer 1 through a power supply jack.

In order to operate the anionizer unit 100, the power switch "A" of the front panel 60 is turned on, and so the high voltage generator 30 is activated by the electric power supplied thereto through the connector 20,
10 thus generating a high voltage. Therefore, a desired electric discharge is caused between the spark generator 45 and the dust collector 50 acting as opposite electrodes of the anionizing assembly 40.

In a detailed description, when the dust collector
15 50 is fully seated in the anionizer unit 100, the two contacts 51-2 of the dust collecting plate 51 of the dust collector 50 are brought into contact with the two contact plates 44 of the anionizing assembly 40, thus being finally grounded to the contact plates 44. In such
20 a case, each of the two contacts 51-2 is positioned above the spark generator 45 while forming a gap between them, thus causing a desired electric discharge within the gap between the contacts 51-2 and the spark generator 45. That is, the dust collecting plate 51 acts as a cathode
25 plate and cooperates with the spark generator 45 acting

as an anode plate, thus generating a high voltage in addition to generating desired anions.

Due to the high voltage generated by the dust collecting plate 51, a variety of contaminants, such as dust, are filtered from the air, introduced to the dust collector 50 through a plurality of air circulation holes (not shown) formed on both the unit bracket 10 and the top cover 11, by the filters "F" attached to the opposite surfaces of the dust collecting plate 51.

10 In such a case, air smoothly passes through the dust collecting plate 51 due to the air circulation holes 51-1 formed on the plate 51. In addition, the filters "F" effectively filter off dust, micro germs and floating micro solid substances from air.

15 Due to the electric discharge formed in the gap between the dust collecting plate 51 and the spark generator 45, the filtered air is anionized, thus becoming anionized clean air and being discharged from the anionizer to the outside of the computer 1 through
20 the grille 61 of the front panel 60.

As well known to those skilled in the art, an ion is an electrically charged atom or group of atoms formed by the loss or gain of one or more electrons, and is created by an ionization of an atom or group of atoms. Such ions
25 are not electroneutral substances. Of the ions, cations

(positive ions) are created by an electron loss and are attracted to the cathode in electrolysis, while anions (negative ions) are created by an electron gain and are attracted to the anode.

5 An anionized atmosphere refreshes people in mind and body as expected when they take a walk on a field after a storm, stand in a waterfall or walk in a pine-grove. Such refreshing, expected from the anionized atmosphere, is caused by water drops, which come into strong
10 collision with surfaces in air to be decomposed and generate a great amount of oxygen ions charged with negative electric charge due to an ionization of air (Lenard's phenomenon), with water drops having positive electricity and air having negative electricity.

15 Such anions have an air cleaning effect, a dust collection effect and a sterilization effect in addition to a neutralization effect for harmful cations. The anions are negatively charged atoms of air, and desirably give an effect of limpid blood, a nervous rest,
20 recuperation, improvement of appetite and promotion of active cells in people, thus allowing them to feel refreshed and infusing vitality into them.

 The filters "F", attached to the opposite surfaces of the dust collecting plate 51, are preferably made of
25 an unwoven fabric, paper or plastic material. It is also

possible to change each existing filter "F" with a new one or to wash the filters "F" after removing the dust collector 50 from the insert slit 62 of the front panel 60 when necessary.

5 In addition, the above filters "F" are preferably laden with perfume capable of deodorizing the filtered contaminants and allowing a user to feel refreshed while operating a computer. Such perfume may be applied to the filters "F" during a process of producing the filters "F"
10 or may be selectively applied to the filters "F" by a user as desired. Of course, a user can select a favorable perfume from a variety of marketed perfumes.

When it is desired to remove an existing dust collector 50 from the front panel 60 of the anionizer
15 unit 100 of this invention so as to change or wash the filters "F", the power switch "A" is turned off prior to thumb-pushing the front door 52 of the dust collector 50. When the front door 52 is pushed as described above, the locking projection 52-1 of the dust collecting plate 51
20 is released from the locking unit 42 of the anionizing assembly 40. Therefore, the support pieces 46 bias the dust collecting plate 51 outward due to the restoring force of the spring "S", and so the front part of the dust collector 50 around the front door 52 is ejected
25 from the insert slit 62 of the front panel 60 to a

predetermined length under the guide of the sliding gear "G" installed within the insert slit 62.

In such a case, the sliding gear "G" engages with the rack gear 52-2 formed on the lower surface of the dust collecting plate 51, and so the dust collector 50 is linearly and slowly ejected from the insert slit 62. In addition, the two guide pieces 63, extending rearward from the opposite ends of the insert slit 62, stably guide opposite side edges of the dust collecting plate 51 during the linear movement of the dust collector 50.

The anionized clean air from the anionizing assembly 40 is discharged from the anionizer unit 100 to the outside of the computer through the grille 61 of the front panel 60. In such a case, the air circulation force capable of discharging the anionized clean air from the anionizer unit 100 to the outside of the computer is formed by a cooling fan (not shown) installed within the computer 1. Therefore, the anionizer of this invention provides anionized clean air to a user of the computer 1 and effectively prevents the user's health from being ill-affected by contaminated air. The anionizer also allows the user to operate the computer under a refreshed atmosphere, thus finally improving work efficiency while operating the computer 1.

The anionizer according to the second embodiment of

Figs. 5 to 8 is operated as follows: When the anionizing power switch 300, provided on the unit bracket 200 of the anionizer unit 100 installed within the drive mount opening 2 of the computer 1, is pushed by a user, contaminated air laden with smoke and dust around the computer 1 is sucked into the unit bracket 200 due to the sucking force of the drive fan 400 through the air inlet 210 formed at the front wall of the bracket 200 and is primarily filtered by the filter 230.

10 In such a case, the filter 230 effectively filters off dust, micro germs and floating micro solid substances from the air. The air from the filter 230 is guided to the anionizing assembly 700 due to the suction force of the drive fan 400. In the anionizing assembly 700, the air secondarily passes through the anionizing plate 730 mounted on the PCB 600, thus being laden with anions formed by an anionization of the air performed by the high voltages of the anode plate 720 and the cathode plate 710 of the anionizing plate 730.

20 The anionized clean air from the anionizing plate 730 of the assembly 700 is discharged from the anionizer unit 100 to the outside of the computer 1 through the air outlet 220 formed on the rear wall of the unit bracket 100. In such a case, the air circulation force capable of discharging the anionized clean air from the anionizer

25

unit 100 to the outside of the computer 1 is formed by a cooling fan (not shown) installed within the computer 1. Therefore, the anionizer of the second embodiment provides anionized clean air to a user of the computer 1 and effectively prevents the user's health from being ill-affected by contaminated air. The anionizer also allows the user to operate the computer under the refreshed atmosphere, thus finally improving work efficiency while operating the computer 1.

10 When such anionized clean air circulates within the computer as described above, a variety of interior devices of the computer in addition to the devices mounted on the PCB are less likely to be easily contaminated by the contaminants of air, thus being smoothly operated without malfunctioning due to the contaminated air. This finally lengthens the expected life span of the devices of the computer.

In addition, the anionizer for personal computers according to this invention provides anionized clean air to a user of the computer and effectively prevents a user's health from being ill-affected by contaminated air when the user operates the computer within a limited working space. The anionizer also allows the user to operate the computer under a refreshed atmosphere, and finally improves work efficiency while operating the

computer.

As described above, the present invention provides an anionizer for personal computers. This anionizer is comprised of a dust collector and an anionizing assembly
5 and is installed in the drive mount opening of a personal computer in the same manner as the installation of conventional drive units of the computer in the mount opening, thus filtering and cleaning contaminated atmospheric air of a limited working space around the
10 computer and anionizing the filtered air. The anionizer finally prevents a user of the computer from being ill-affected by contaminated air and prevents the interior devices of the computer from being contaminated or malfunctioning due to contaminated air. In addition, the
15 dust collector is easily washable or changeable with a new one, and so it is easy and simple to maintain the optimal operational condition of the anionizer for a desired period of time.

Although a preferred embodiment of the present
20 invention has been described for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

WHAT IS CLAIMED IS:

1. An anionizer for personal computers, comprising
an anionizer unit installed in a drive mount opening of a
5 personal computer in the same manner as an installation
of a conventional drive unit of the computer in said
mount opening.

2. The anionizer according to claim 1, wherein said
10 anionizer unit comprises:

a unit bracket covered with a top cover at its top;
a connector set on said unit bracket and connected
to a power supply jack of the computer;

a high voltage generator electrically connected to
15 said connector and generating a high voltage;

an anionizing assembly electrically connected to
said high voltage generator and generating anions;

a dust collector set at a position above said
anionizing assembly and collecting contaminants, such as
20 dust, from air through an electric discharging effect;
and

a front panel used for guiding an insertion of said
dust collector from a front of said unit bracket to the
position above the anionizing assembly and turning on or
25 off electric power for the anionizer unit.

3. The anionizer according to claim 2, further comprising a drive fan used for forcibly sucking air from the interior of the computer into said unit bracket and
5 discharging the air from the unit bracket to the outside of the computer through said front panel.

4. The anionizer according to claim 2, wherein said anionizing assembly comprises:

10 a base plate made of a plastic material and mounted to a bottom wall of said unit bracket;

a locking unit mounted on a central portion of said base plate and used for alternately holding the dust collector;

15 two support units installed at opposite sides of said locking unit while being spaced apart from each other and used for elastically supporting said dust collector thereon;

two contact plates installed at opposite sides of
20 said locking unit while being spaced apart from each other and being electrically connected to said high voltage generator, said contact plates elastically supporting said dust collector thereon; and

a spark generator installed on said base plate and
25 causing an electric discharge between opposite electrodes

by the high voltage generator.

5 5. The anionizer according to claim 4, wherein each
of said support units is integrated with the base plate
and has an axial slide groove on its top surface, with
both a support piece being bent at a right angle at
opposite ends thereof and being axially movably set on
said slide groove and a tension coil spring normally
biasing said support piece in a direction toward the
10 front panel.

6. The anionizer according to claim 3, wherein said
dust collector comprises:

15 a dust collecting plate provided with a plurality of
air circulation holes for allowing air to pass through
the dust collecting plate in accordance with an electric
discharging operation of said electrodes;

20 a front door provided along a front edge of said
dust collecting plate and having a shape suitable for
being selectively seated in the front panel;

 a locking projection formed at a center of a rear
edge of the dust collecting plate; and

 a rack gear formed on a lower surface of said dust
collecting plate in a direction from the front door to
25 the rear edge.

7. The anionizer according to claim 6, wherein at least two contacts are provided on said dust collecting plate.

5

8. The anionizer according to claim 6, wherein a filter laden with charcoal is attached to each surface of said dust collecting plate, said filter being used for absorbing and filtering contaminants from air passing
10 through the dust collecting plate.

9. The anionizer according to claim 6, wherein an unwoven fabric, a film or a sticker, laden with perfume, is attached to each surface of said dust collecting plate
15 so as to absorb and filter contaminants from air passing through the dust collecting plate.

10. The anionizer according to claim 3, wherein said front panel comprises:

20 a ventilation grille used for discharging air from the anionizer unit to the outside of the computer;

a power switch provided at a central portion of the front panel for controlling electric power for the anionizer unit;

25 an insert slit formed at a position above the grille

and used for allowing an insertion of the dust collector into the anionizer unit;

two guide pieces extending rearward from opposite ends of said insert slit and used for guiding a movement
5 of the dust collector when the dust collector is inserted from the front panel into the anionizer unit; and

a sliding gear installed within said insert slit and allowing a smooth sliding movement of the dust collector within the insert slit.

10

11. The anionizer according to claim 1, wherein said anionizer unit comprises:

a unit bracket installed in the drive mount opening of the personal computer in the same manner as the
15 installation of the conventional drive unit of the computer in said mount opening, said unit bracket being covered with a top cover at its top, with both an air inlet formed at a front wall of the unit bracket and an
air outlet formed at a rear wall of the unit bracket;

20 an anionizing assembly mounted on a printed circuit board set on said unit bracket and adapted for generating anions from its anionizing plate, said anionizing plate consisting of an anode plate and a cathode plate individually generating a high voltage;

25 an anionizing power switch provided on a front wall

of said unit bracket for turning on or off the anionizing assembly so as to selectively generate anions;

a drive fan provided on said unit bracket and rotated at a predetermined rpm when the anionizing assembly is turned on, said drive fan thus generating sucking force for forcibly sucking air into the interior of said unit bracket; and

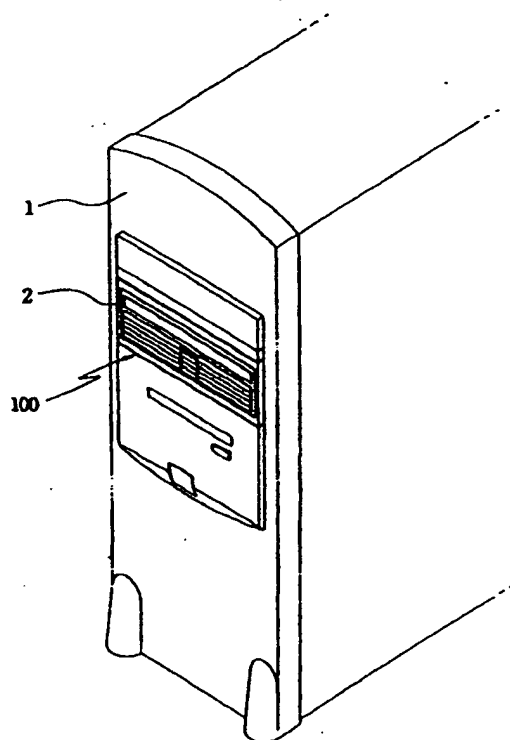
an air filter installed around said drive fan so as to filter off impurities from the sucked air.

10

12. The anionizer according to claim 1, wherein the unit bracket is provided with both a power display for displaying an application of electric power for the anionizer and an anionizing assembly display for displaying an operational state of said anionizing assembly.

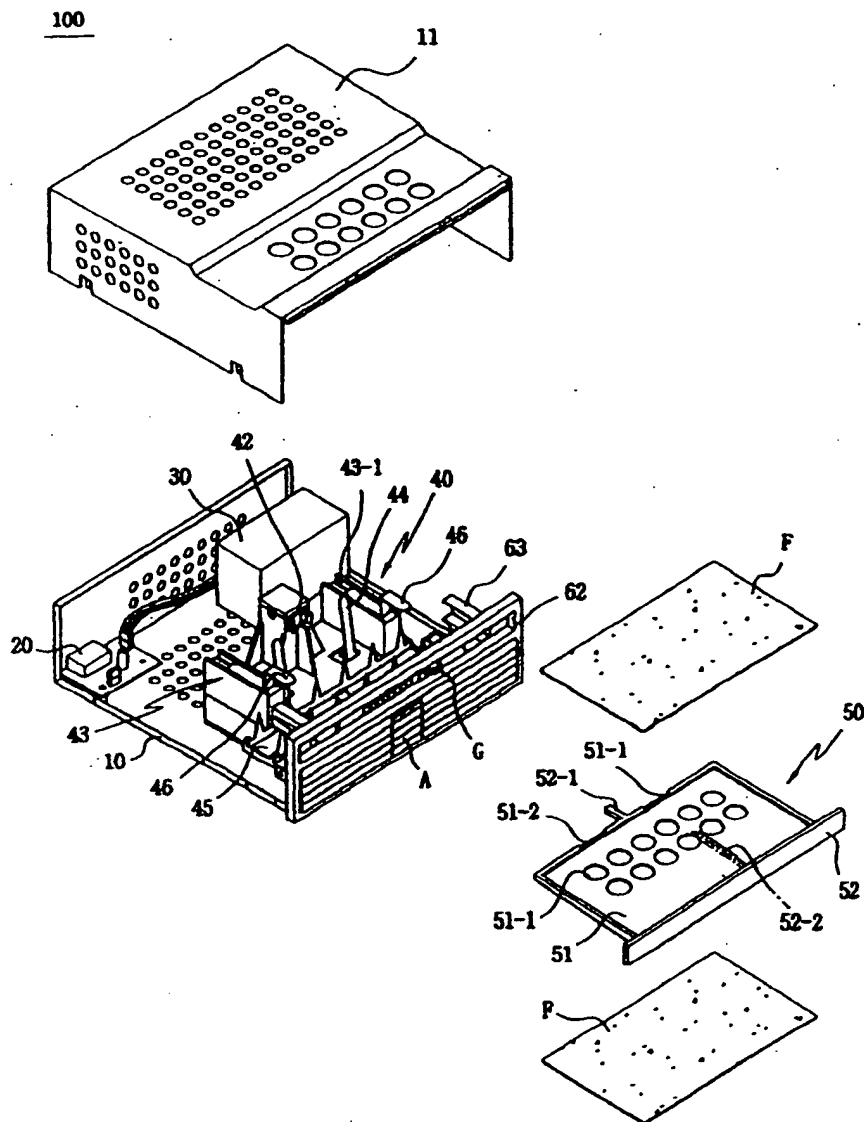
1/6

Fig. 1



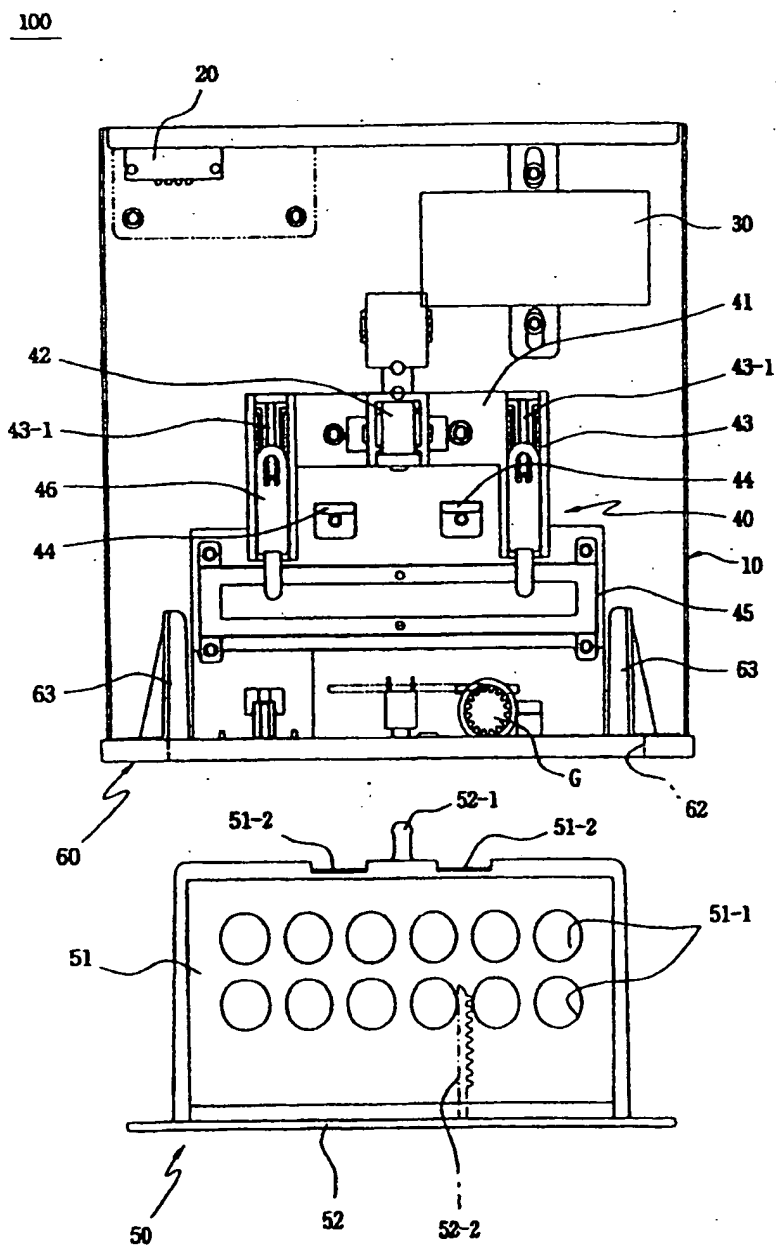
2/6

Fig. 2



3/6

Fig. 3



4/6

Fig. 4

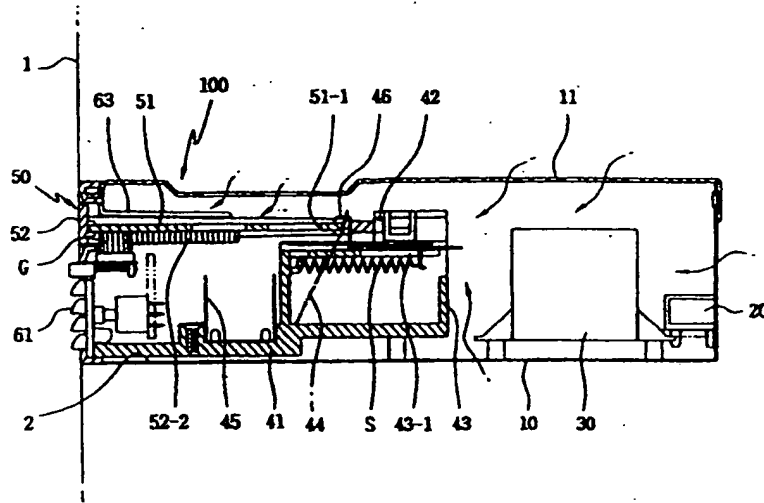
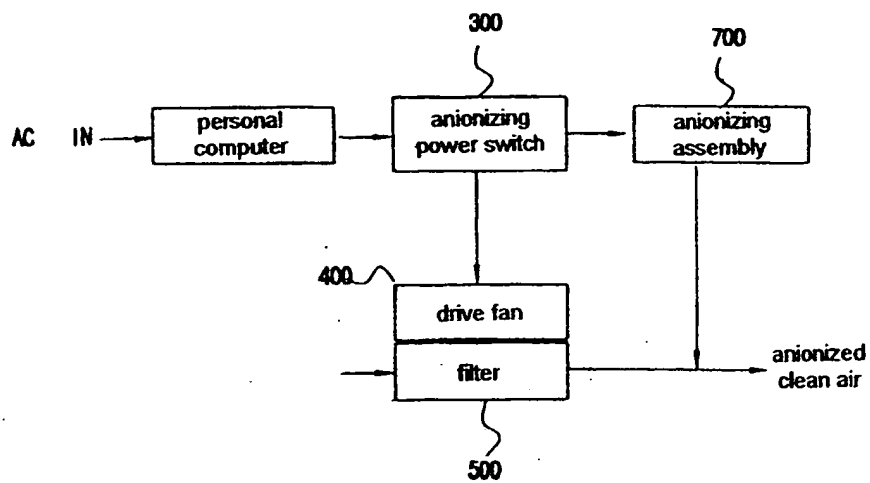
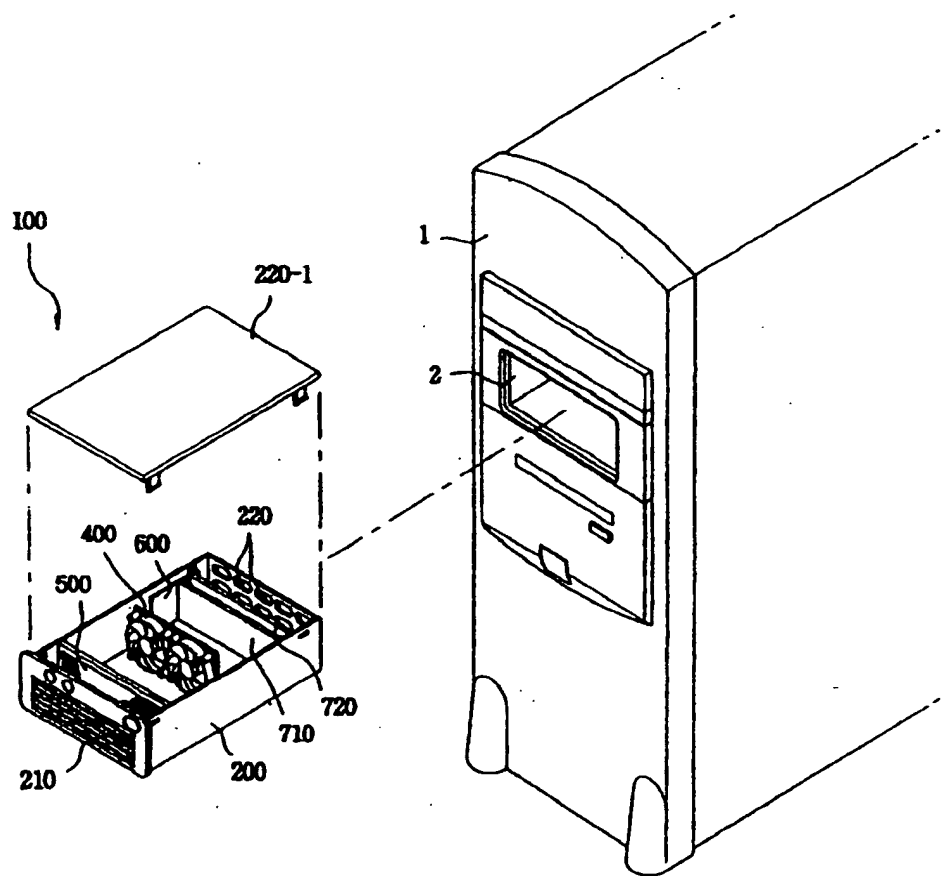


Fig. 5



5/6

Fig. 6



6/6

Fig. 7

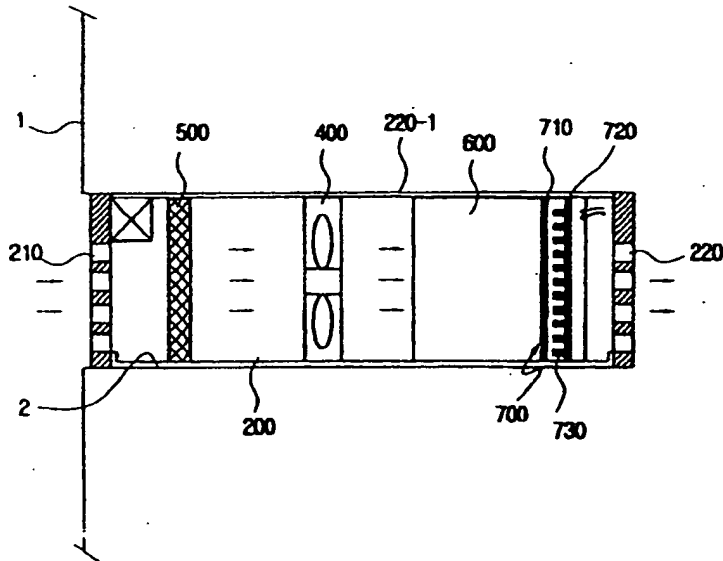
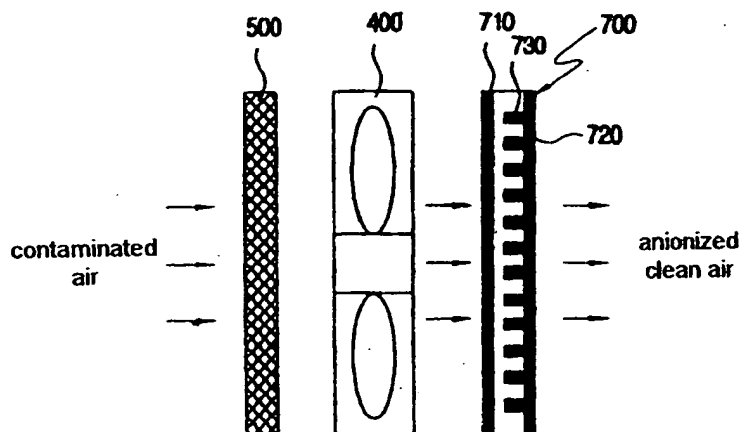


Fig. 8



INTERNATIONAL SEARCH REPORT

international application No.

PCT/KR00/00847

A. CLASSIFICATION OF SUBJECT MATTER**IPC7 G06F 1/16**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F 1/00, G06F 1/16, G06F 1/26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patent and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, Y	KR 97-2361 B1 (HYUNDAI CORP.) 3 MAR 1997 (3. 3. 1997) * whole documents	1-12
Y	KR 99-11599 U (SAMSUNG CORP.) 25 MAR 1999 (25. 3. 1999) * whole documents	1-12
Y	KR 95-34080 U (LG CORP.) 18 DEC 1995 (18. 12. 1995) * abstract & claims	1-12

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

15 DECEMBER 2000 (15.12.2000)

Date of mailing of the international search report

15 DECEMBER 2000 (15.12.2000)

Name and mailing address of the ISA/KR

Korean Industrial Property Office
Government Complex-Taejon, Dunsan-dong, So-ku, Taejon
Metropolitan City 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

CHO, Hyung Hee

Telephone No. 82-42-481-5991

